VINOGRADOV, I.Ye.

Congenital pyloric stenosis in infants. Khirurgiia 34 no.5:111-112 My '58 (MIRA 11:7)

1. Iz khirurgicheskogo (zav. I.Ye. Vinogradov) i detskogo (zav. K.G. Sergeyeva) otdeleniy Belovolzhskoy rayonnoy bol'nitsy Chuvashskoy ASSR.

(PYLORUS, stenosis
congen. in inf., surg. (Rus))

VINOGRADOV, I.Ye.

Surgical technic in so-called "black sigma". Khirurgiia, Moskva 34 no.11:111-112 N '58. (MIRA 12:1)

1. Iz khirurgicheskogo otdeleniya (zav. I.Ye. Vinogradov) Belovolzhskoy rayonnoy bol'nitsy Chuvashkoy ASSR (glavnyy vrach A.V. Megalinskaya).
(COLOR, dis.
torsion of sigmoid, surg. (Rus)).

VINOGRADOV, I.Ye.

Abdominopericardiostomy in the district hospital. Kaz.med.zhur. 40 no.1:73-74 Ja-F '59. (MIRA 12:10)

1. Iz khirurgicheskogo otdeleniya (zav. - I.Ye.Vinogradov) Belovolzhskoy rayonnoy bol'nitsy Chuvashskoy ASSR.
(PERICARDIUM--SURGERY)

VINOGRADOV, K.

Conditions of work in the chemical industry. Okhr. truda i sots. strakh. 6 no.9:20-21 S '63. (MIRA 16:10)

1. Zamestitel' nachal'nika tekhnicheskogo upravleniya Gosudarstvennogo komiteta khimicheskoy i neftyanoy promyshlennosti pri Gosplane SSSR.

VINOGRADOV, K.

Economic efficiency of production standardization, unification and specialization. Vop. ekon. no.9:78-85 S '63. (MIRA 16:9)
(Machinery industry)

USSR/Chemistry - Miscellaneous FD-2738

Card 1/1 Pub. 50 - 19/20

Authors : Vinogradov, K., Faynshteyn, S. Ya., Yashunskaya, F. I., Kreysberg, A. Ya., Grigor'yev, P. I.

Title : New items.

Periodical : Khim. prom. No 5, 312-318, Jul-Aug 1955

Abstract : This section contains news items dealing with a meeting of chiefs of central plant laboratories of enterprises of the Ministry of Chemical Industry USSR, a meeting of technical personnel engaged in the production of DDT, a meeting of workers at the Scientific Research Institute of the Tire Industry, socialistic competition and introduction of improvements in the fixed nitrogen industry, experience of operators at the "Krasnyy Treugol'nik" plant in the continuous production of rubber footwear by the conveyor assembly method, and a conference of readers of "Khimicheskaya Promyshlennost'" at the Molotov State Chemical Plant imeni S. Ordzhonikidze

1. VINOGRADOV, K.

2. USSR (600)

4. Construction Industry - Statistics

7. Capital consturction in the 5th five-year plan and tasks of statistics in capital construction. Vest.stat., no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

2-58-6-2/16

AUTHOR: Vinogradov, K.

TITLE: Current Problems of Calculation and Statistics of Capital Construction (Aktual'nyye voprosy uchëta i statistiki kapital'nogo stroitel'stva)

PERIODICAL: Vestnik statistiki, 1958, Nr 6, pp 10-19 (USSR)

ABSTRACT: Capital construction in the USSR is developing rapidly. While the 4th Five-Year Plan showed capital investments by the state, kolkhozes, cooperative enterprises and organizations amounting to 370 billion rubles, the 5th Five-Year Plan (1951-1955) reached the sum of 721 billion rubles, an increase of 95 %. Since the Soviet Union is vitally interested in the most efficient use of invested capital, strict control over building activity is exerted by detailed book-keeping and operational statistics on the part of TsSU (Central Statistics Administration) and statistical administrations of the Union republics. During the All-Union Construction Conference in April 1958, the main subjects discussed were the still existing deficiencies in the calculations of construction projects and the ways of eliminating them. One of the most important duties of the government statistics agencies is calculations of housing construction. In 1957, the total floor space of completed government built

Card 1/2

Current Problems of Calculation and Statistics of Capital Construction

dwelling houses in the entire USSR was 48 million sq m with an additional 770,000 individually built country houses. In 1958, the total housing floor space to be constructed is expected to reach 61 million sq m plus 800,000 dwellings in rural communities.
There are 2 tables.

VINOGRADOV, K.

Conference of composite crews of scientific research institutes. Khim.prom. no.4:350-351 Je '60.
(MIRA 13:8)
(Chemistry, Technical--Congresses)

VINOGRADOV, K.

Meeting of the heads of central laboratories in plants of the Ministry of the Chemical Industry. Khim.prom.no.5:312-314 Jl-Ag '55. (MLRA 9:1)

(Chemical laboratories)

SOV-2-58-8-9/12

AUTHOR: Vinogradov, K.

TITLE: Determining the Cost of Construction and Assembly Work According to Estimate and According to the Plan (Opredeleniye smetnoy stoimosti i planovoy sebestoimosti stroitel'nykh i montazhnykh rabot)

PERIODICAL: Vestnik statistiki, 1958, Nr 8, pp 69 - 71 (USSR)

ABSTRACT: In the engineering projects and blueprints, the volume of every kind of work is fixed. Also established are norms for labor and material expenditure, as well as the operating time for construction machines. The expenditure norms are calculated according to existing tariff rates for workmen, material wholesale price lists, electrical energy and goods transportation tariffs and according to tariffs for the work of construction machines. The cost of a unit of construction work, including basic laborers wages, material expenditure and outlays for the use of construction machines, is called the unit price for the particular type of work. The cost of construction work according to unit price is made up exclusively of direct expenditures. To obtain the full estimated cost, the

Card 1/2

SOV-2-58-8-9/12

Determining the Cost of Construction and Assembly Work According to Estimate and According to the Plan

overhead expenses and the reserve sums due to the construction organization, must be added. The construction organizations' reserve sums are fixed at 2.5% of the total sum of direct expenditure plus overhead expenses. Thus, in order to establish the full estimated cost of the completed construction work, it is necessary to establish the volume of each kind of work, calculate it according to unit prices and to the sum obtained, add the overhead expenses and the reserve sums foreseen by the plan. The author goes on to explain how the estimated cost of work on equipment assembling is determined. There is 1 table.

Card 2/2

VINOGRADOV, K.; MAKAROV, V.

Public inspection is mobilizing. Na stroi.Ros. 6 no.2: 19 F '65. (MIRA 19:1)

1. Zamestitel' nachal'nika tekhnicheskogo upravleniya Glavnogo upravleniya po stroitel'stvu v Moskovskom ekonomicheskom rayone Ministerstva stroitel'stva RSFSR (for Vinogradov). 2. Nachal'nik laboratorii kontrolya kachestva Glavnogo upravleniya po stroitel'stvu v Moskovskom ekonomicheskom rayone Ministerstva stroitel'stva RSFSR (for Makarov).

SOSYANTS, V.G., dotsent, obshchiy red.; IVANOV, I.T., kand.tekhn.nauk, red.; KLOPATOV, K.K., inzh., red.; ZHUKOV, A.I., prof., doktor tekhn.nauk, red.; GULYAYEV, N.F., kand.tekhn.nauk, red.; DUBOV, Yu.B., inzh., red.; ANTONOV, I.K., kand.tekhn.nauk, red.; YEFREMOV, I.S., prof., doktor tekhn.nauk, red.; DYUSKIN, V.K., doktor tekhn.nauk, red.; VINOGRADOV, K.A., kand.sel'skokhoz.nauk, red.; BOTOVA, Yu.P., red. izd-va; SALAZKOV, N.P., tekhn.red.

[Materials of the Scientific and Technical Conference on Problems in Introducing Achievements of Science and Technology in Municipal Economy] Materialy Nauchno-tekhnicheskogo soveshchaniia po voprosam vnedreniia dostizhenii nauki i tekhniki v gorodskoe khoziaistvo. Moskva, Izd-vo kommun.khoz.RSFSR. No.6. [Roads and municipal electric transportation] Gorodskoi transport i dorogi. Pod obshchei red. V.G. Sosiantsa. 1959. 197 p. (MIRA 13:2)

1. Nauchno-tekhnicheskoye soveshchaniye po voprosam vnedreniya dostizheniy nauki i tekhniki v gorodskoye khozyaystvo. 2. Rukovoditel' sektora gorodskogo transporta Akademii kommunal'nogo khozyaystva (for Sosyants).

(Local transit) (Road construction)

PRINTSEVA, inzh.; RODINA, inzh.; DENISOVA, inzh.; VINOGRADOV, K.A., kand. sel'skokhozyaystvennykh nauk; KORZHEV, M.P., arkhitektor

Preserving forests in areas designated for housing construction. Gor. khoz. Mosk. 33 no.7:29-30 Jl '59. (MIRA 12:10)

1.Gorproyekt, g.Perm' (for Printseva, Rodina, Denisova). 2.Rukovoditel' sektora ozeleneniya gorodov Akademii kommunal'nogo khozyaystva (for Vinogradov).

(Forests and forestry)

VINOGRADOV, K.

Prospects for housing construction and the housing census in the U.S.S.R. Vop. ekon. no.10:70-79 O '59. (MIRA 12:12)

1.Chlen kollegii TSentral'nogo statisticheskogo upravleniya SSSR.
(Housing)

VINOGRADOV, K.

Cooperation of socialist countries in the development of the machinery industry. Vop. ekon. no.2:17-24 F '60.
(MIRA 13:1)
(Machinery industry) (Mutual Economic Assistance Council)

VINOGRADOV, K. (UAIINX) (Severodvinsk)

Pole antenna with gamma-matching device. Radio no.7:18-19 Jl '63. (MIRA 16:7)

(Radio--Antennas)

VINOGRADOV, K.A.

Further development of landscape gardening and the work of the Academy of Municipal Services on town planting in Western Siberia. Trudy TSSBS no.3:5-10 '60. (MIRA 15:3)
(Siberia, Western--Landscape gardening)

VINOGRADOV, K. A.

PA 60T62

USSR/Medicine - Marine Organisms Dec 1947
Medicine - Taxonomy

"Atlantic Elements in the Black Sea Polyhet Fauna,"
K. A. Vinogradov, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVIII, No 7

Twenty new polyhets discovered in Black Sea. Describes facts which lead scientists to conclude that some of these are also common to Atlantic fauna. Submitted by Academician I. I. Shmal'gauzen, 23 May 1947.

FDB 60T62

VINOGRADOV, K. A.

Vinogradova, Z. A. and Vinogradov, K. A. - "On the discovery of lancelet Branchiostoma lanceolatum costa in the Black Sea at Karadage," Doklady Akad. nauk Ukr. SSR, No. 5, 1948, p. 8-11, (In Ukranian, resume in Russian.)

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

VINOGRADOV, K. A.

Sep/Oct 48

U[redacted]R/Biology
Flora
Fauna

"Survey of the Work of the Karadag Biological Station on the Fauna and Flora of the Black Sea for the Past Thirty Years (1917-1947)," K. A. Vinogradov, Karadag, 16 pp

"Uspekh Sovrem Biol" Vol XXVI, No 2 (5) p.773

Results of the station's early work were published in 1917. In 1937, it joined the system of the Acad Sci Ukrainian SSR. It made a special study of the shipworm. Studies were conducted on: zoobenthos,

60/49T13

[redacted]

Sep/Oct 48

U[redacted]R/Biology (Contd)

zooplankton, ichthyofauna (including fish parasites), phytobenthos and phytoplankton, the biology of crayfish, mollusks, and fish, and the biochemistry of Black Sea organisms. Gives names of many scientists.

60/49T13

[redacted]

VINOGRADOV, K. A.

3025 O [illegible] (Ekologicheskaya [illegible] ka). Zool. [illegible]al, 19[illegible], V[illegible], S. 73-84

SO: Letopis' Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

VINOGRADOV, K.A.

A list of Black Sea fishes found in the region of the Karadag Biological Station and notes on their biology and ecology. (MLRA 9:8)
Trudy Karad.biol.sta. no.7:76-106 '49.
(Black Sea--Fishes)

VINOGRADOV, K. A.

Vinogradov, K. A. - "The fauna of annelids (Polychaeta) of the Black Sea," Trudy Karadag. biol. stantsii, Issue 8, 1949, p. 3-84, - Bibliog: p. 82-84

SO: U-4934, 29 Oct 53, (Letopis 'Zhurnal 'Nykh Statey, No. 16, 1949).

VINOGRADOV, K. A.

FA 39/49T72

USSR/Medicine - Fish
Medicine - Fecundity

Mar 49

"The Fertility of Coastal Fish in the Black Sea," K. A. Vinogradov, K. S. Tkacheva, Karadag Biol Sta, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 3

Studied fertility of about 30 forms of Black Sea fish. Tables show relations between fish size and quantity of spawn, and between size and amount of milt, etc. Submitted by Acad L. S. Berg, 28 Jan 49.

39/49T72.

VINOGRADOV, K.A.; ROSHAL', S.Ye.

Solubility of natural gases in petroleums. Trudy AzNII DN no.3:88-93 '56. (MIRA 11:6)

(Gas, Natural)

VINOGRADOV, K.A.

Biology of the northwestern part of the Black Sea [with English summary in insert]. Zool.zhur. 35 no.4:492-500 Ap '56. (MLRA 9:8)

1. Odesskaya biologicheskaya stantsiya Instituta gidrobiologii AN USSR.

(Black Sea--Marine biology)

VINOGRADOV, Konstantin Aleksandrovich.; ROLL, Ya.V., otv. red.; BRAGINSKIY, L.P., red. izd-va.; YURCHISHIN, V.I., tekhn. red.

[Outline history of Russian hydrobiological studies carried out in the Black Sea] Ocherki po istorii otechestvennykh gidrobiologicheskikh issledovanii na Chernom more. Kiev, Izd-vo Akad. nauk USSR, 1958. 152 p. (MIRA 11:11)

1. Chlen-korrespondent AN USSR (for Roll).
(Black Sea--Hydrobiology)

KAMINSKAYA, L.D. [Kamins'ka, L.D.], student biolog. fakul'teta; VINOGRADOV, K.A. [Vynohradov, K.A.], nauchnyy rukovoditel', prof.

Composition of the bottom population of Kislaya Inlet of Kandalaksha Gulf on the White Sea. Pratsi Od.un. Zbir.stud. rob. 149 no.5:155-157 '59. (MIRA 13:4)

1. Odesskiy gosudarstvennyy universitet.
(Kislaya Inlet--Marine biology)

VINOGRADOV, K.A.

Boundaries of Zernov's Phyllophora fields in the northwestern part of the Black Sea. Trudy Od. un. 152. Ser. geol. i geog. nauk no.9:179-184 '62. (MIRA 17:6)

TSULADZE, L.Ye., otv. red.; MILOVSKIY, A.A., prof., red.; KARZINKIN, G.S., prof., red.; VINOGRADOV, K.A., prof., red.; MESHKOVA, T.M., doktor biol. nauk, red.; TSKHOMELIDZE, O.I., kand. biol. nauk, red.

[Transactions of the First Scientific Conference Dedicated to the Study and Use for Fisheries of the Inland Bodies of Water of Georgia] Trudy Nauchnogo soveshchaniia posviashchennogo izucheniiu i rybokhoziaistvennomu ispol'zovaniiu vnutrennikh vodoemov Gruzii, Batumi, Nauchno-issl. Rybokhoziaistvennaia stantsiia Gruzii, 1963. 161 p. (MIRA 17:7)

1. Nauchnoye soveshchaniye, posvyashchennoye izucheniyu i rybokhozyaystvennomu ispol'zovaniyu vnutrennikh vodoyemov Gruzii, 1st, Batum, 1961. 2. Direktor Nauchno-issledovatel'skoy Rybokhozyaystvennoy stantsii Gruzii (for TSuladze).

VINOGRADOV, K.A. [Vynohradov, K.O.]; [illegible], O.V. [illegible, O.V.]

Polychaeta in the northwestern part of the Black Sea. Nauk.zap. Od.biol.sta. no.5:3-11 '64. (MIRA 18:3)

VINOGRADOV, K.A. [Vynohradov, K.O.]; ZAKUTSKIY, V.P. [Zakuts'kyi, V.P.]

A few words about the Echinodermata of the Black Sea. Nauk.zap. Od.biol.sta. no.5:108-110 '64. (MIRA 18:1)

VINOGRADOV, K.A. [Vynohradov, K.O.]

Characteristics of the species of zoobenthos and ichthyofauna of the shallow bays in the northwestern part of the Black Sea. Nauk. zap.Od.biol.sta. no.5:16-25 '64.

(MIRA 18:1)

VINOGRADOV, K.A.

History of the founding and research conducted at the Odessa Biological Station of the Institute of Hydrobiology of the Academy of Sciences of the Ukrainian S.S.R. Okeanologiia 3 no.3:554-558 '63. (MIRA 16:8)

(Odessa--Marine biology--Research)

VINOGRADOV, K.A.; ZEMLYANITSKIY, L.T.; NOVOZHILOVA, V.A.[deceased]; LUNEVA, Z.S.; VAKULENKO, V.V.; GALAKTIONOV, I.I.; ALEKSEYENKO, L.V.; NERONOVA, M.D., red.; KHENOKH, F.M., tekhn. red.

[Care of urban plantings] Ukhod za gorodskimi nasazhdeniiami. Moskva, Izd-vo Kommun. khoz.RSFSR, 1963. 89 p. (MIRA 16:7)

1. Akademiya kommunal'nogo khozyaystva.
(Landscape gardening)

VINOGRADOV, K.A. [Vynohradov, K.O.]

Feeding areas of benthic fishes in the northwestern part of the Black Sea. Nauk.zap.Od.biol.sta. no.1:98-112 '59. (MIRA 14:7)
(Black Sea—Benthos) (Fishes—Food)

VINOGRADOV, K.A. [Vynohradov, K.O.]

Brief outline of the organization and activities of the Odessa Biological Station at the Institute of Hydrobiology of the Academy of Sciences of the Ukrainian S.S.R. during 1954-1957. Nauk.zap.Od. biol.sta. no.1:3-5 '59. (MIRA 14:7)
(Black Sea—Hydrobiological research)

CHEPURNOV, V.S., dotsent, kand.biolog.nauk, otv.red.; KLIMENKO, V.G., prof., doktor biolog.nauk, red.; VINOGRADOV, K.A., prof., doktor biolog.nauk, red.; BURNASHEV, M.S., dotsent, kand.biolog.nauk, red.

[Transactions of the Ichthyological Conference on the Study of the Lagoons of the northwestern part of the Black Sea] Trudy 1-oy ikhtiologicheskoi konferentsii po izucheniiu morskikh limanov severo-zapadnoi chasti Chernogo moria. Kishinev, Kishinevskii gos.univ., 1960. 215 p. (MIRA 14:2)

1. Ikhtiologicheskaya konferentsiya po izucheniyu morskikh limanov severo-zapadnoy chasti Chernogo morya. 1st, Kishinev, 1959. 2. Kishinevskiy Gosuniversitet (for Chepurnov, Burnashev). 3. Odesskaya biologicheskaya stantsiya Instituta gidrobiologii Akademii nauk USSR (for Vinogradov). (Black Sea region--Fishes--Congresses)

VINOGRADOV, K.F.

FD-886

USSR/Chemistry - Contamination of water with chemicals

Card 1/1 Pub.50 - 19/24

Author : *Vinogradov, K. F.

Title : The maximum permissible concentrations of harmful substances in water basins.

Periodical : Khim. prom., No 6, 376 (56), Sep 1954

Abstract : The highest permissible concentrations of harmful chemicals in water basins are listed on the basis of standards established by the Main State Sanitary Inspection USSR.

Institution : Scientific Research Institute Division (*Chief) of the Technical Administration, Ministry of Chemical Industry USSR

Submitted :

VINOGRADOV, K.F.

Plus the chemicalization of the national economy. Priroda 53 no.4:17-26 '64. (MIRA 17:4)

1. Gosudarstvennyy komitet khimicheskoy promyshlennosti pri Gosplane SSSR, Moskva.

.VINOGRADOV, K. F.

USSR/Chemistry - Training, Organizational

Card 1/1

Author : Vinogradov, K. F.

Title : More attention to the preparation of scientific personnel through aspirantships

Periodical : Khim. prom. 4, 1-4 (193-196), June 1954

Abstract : Discusses shortcomings in the training of aspirants at the scientific research institutes of the Ministry of Chemical Industry, giving examples pertaining to individual institutes and emphasizing delays in the preparation of dissertations. Says that out of 72 aspirants who were supposed to defend dissertations at the institutes of the Ministry in 1953, only 9 actually did so. Outlines in detail the requirements for the admission of aspirants in 1954.

Institution : Technical Administration, Ministry of Chemical Industry USSR

VINOGRADOV, K.V.

Competitive filling of positions in scientific-research institutes.
Khim.prom. no.4:252-254 Je '57. (MLRA 10:9)
(Scientists--Employment)

SOV/26-59-2-8/53

8(1)
AUTHOR: Vinogradov, K.F.

TITLE: The Development of the Chemical Industry and Science (Razvitiye khimicheskoy promyshlennosti i nauka)

PERIODICAL: Priroda, 1959, Nr 2, pp 31-38 (USSR)

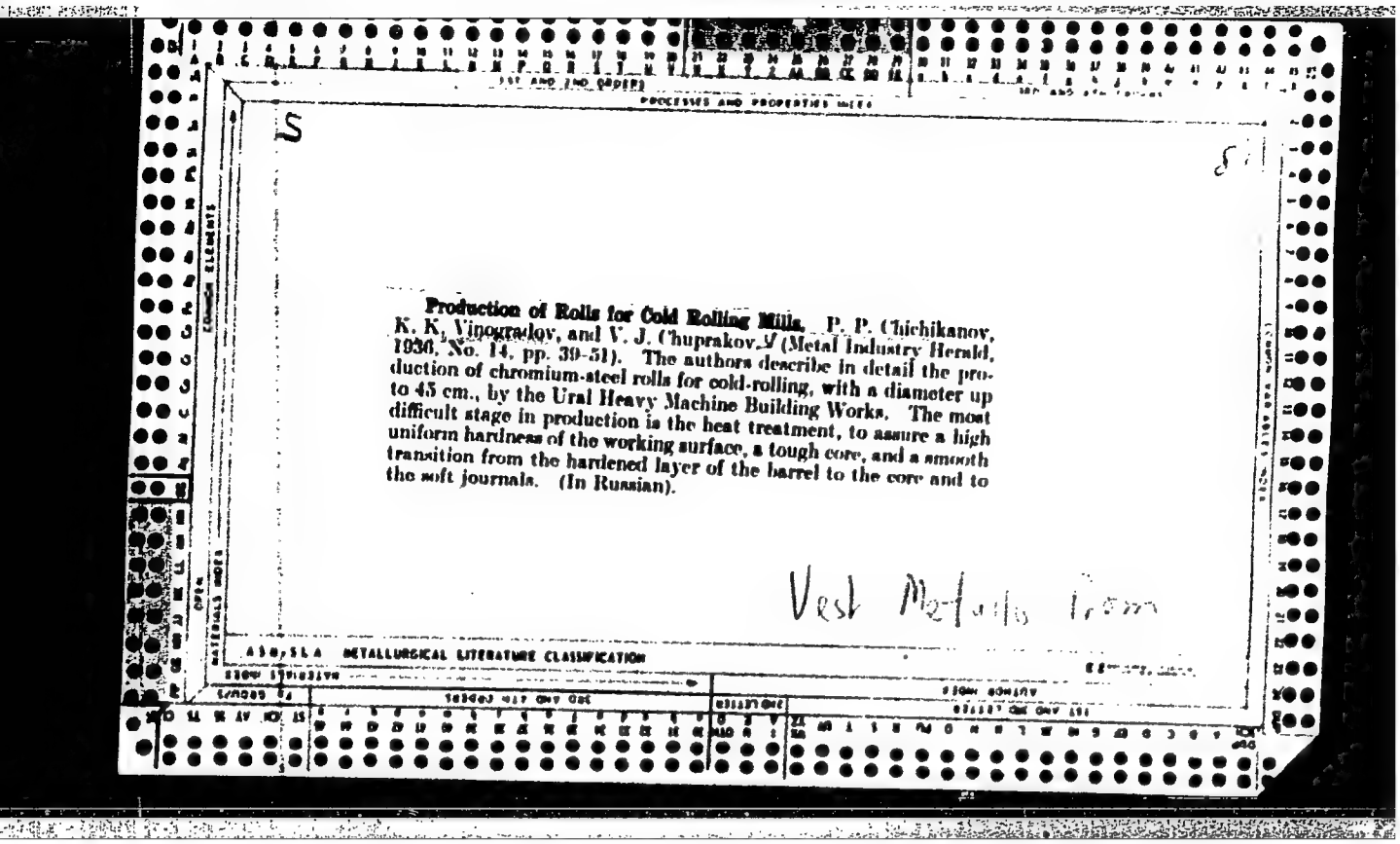
ABSTRACT: The Seven Year Plan foresees an accelerated development of the chemical industry in general, and particularly in the field of production of synthetic and artificial fibers and plastic materials. The Plan foresees an expenditure of over 100 billion rubles for the construction of 140 new and reconstruction of 130 old large chemical plants. After the second world war, when more than 50% of the chemical plants were destroyed, apart from reconstruction, a series of new powerful plants was built: Sterlitamakskiy sodovyy zavod (Sterlitamak Soda Plant) Ufimskiy zavod sinteticheskogo kauchuka (Ufa Synthetic Rubber Plant), Sumgaitskiy zavod sinteticheskogo kauchuka (Sumgait Synthetic Rubber Plant)(Figure 1), Dzhambulskiy superfosfatnyy zavod (Dzhambul Superphos-

Card 1/2

The Development of the Chemical Industry and Science

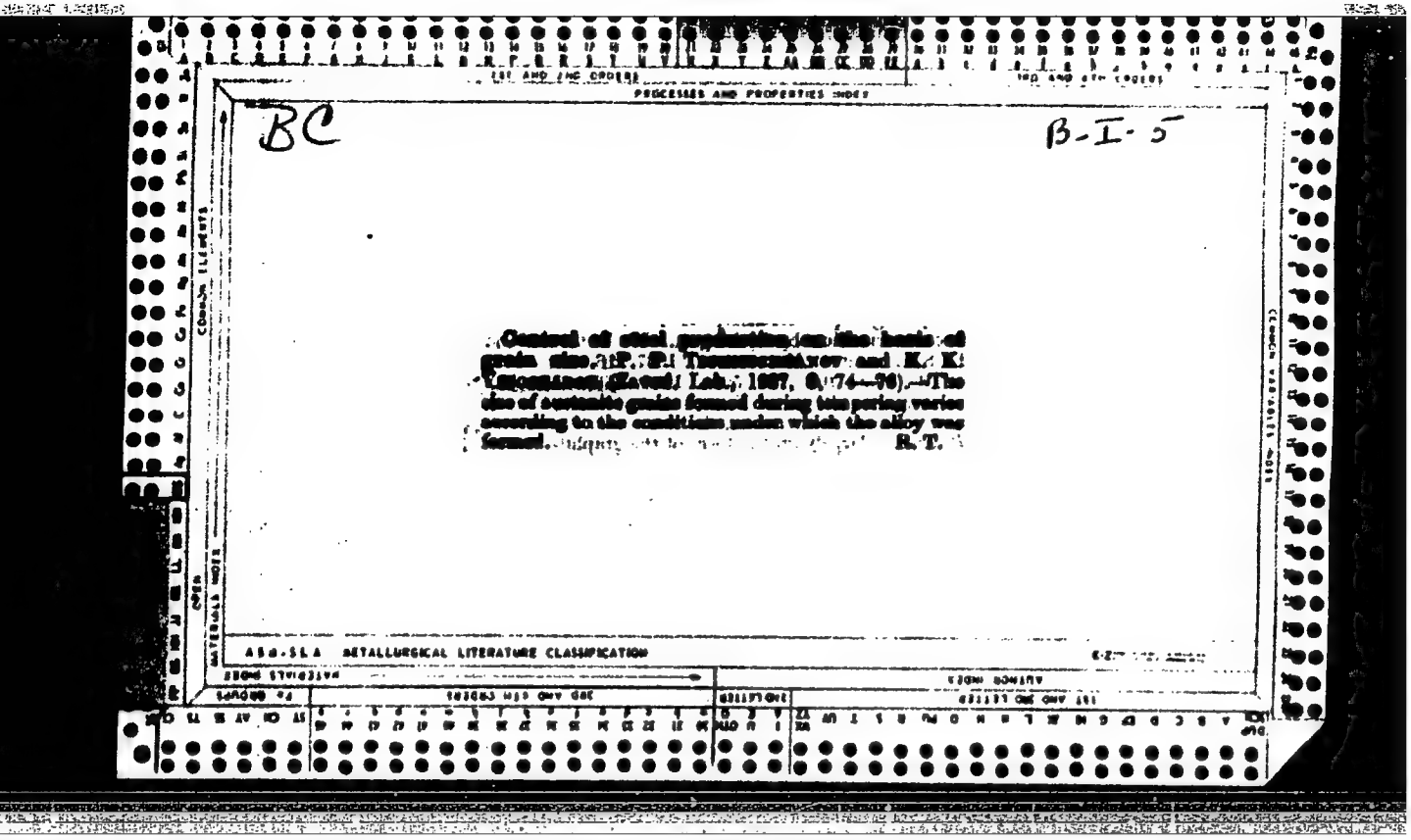
phate Plant), Samarkandskiy superfosfatnyy zavod (Samarkand Superphosphate Plant), Rustavskiy Azotno-tukovyy zavod (Rustavi Nitrogen and Fertilizer Plant) (Figure 2), Lisichanskiy khimicheskiy kombinat (Lisichansk Chemical Combine), etc. In 1957, the global production of chemicals increased 5.2 times in comparison with 1940. Nevertheless, the production cannot satisfy the requirements of the national economy. The USSR occupies only 5th place in the production of plastics and 6th in the production of chemical fiber. The author then gives a description of different artificial and synthetic fibers, the production of which would realize huge savings of metal, minerals and money. There are 5 photographs.

ASSOCIATION: Gosudarstvennyy komitet Soveta Ministrov SSSR po khimii (State Committee on Chemistry at the Council of Ministers of the USSR)- Moscow

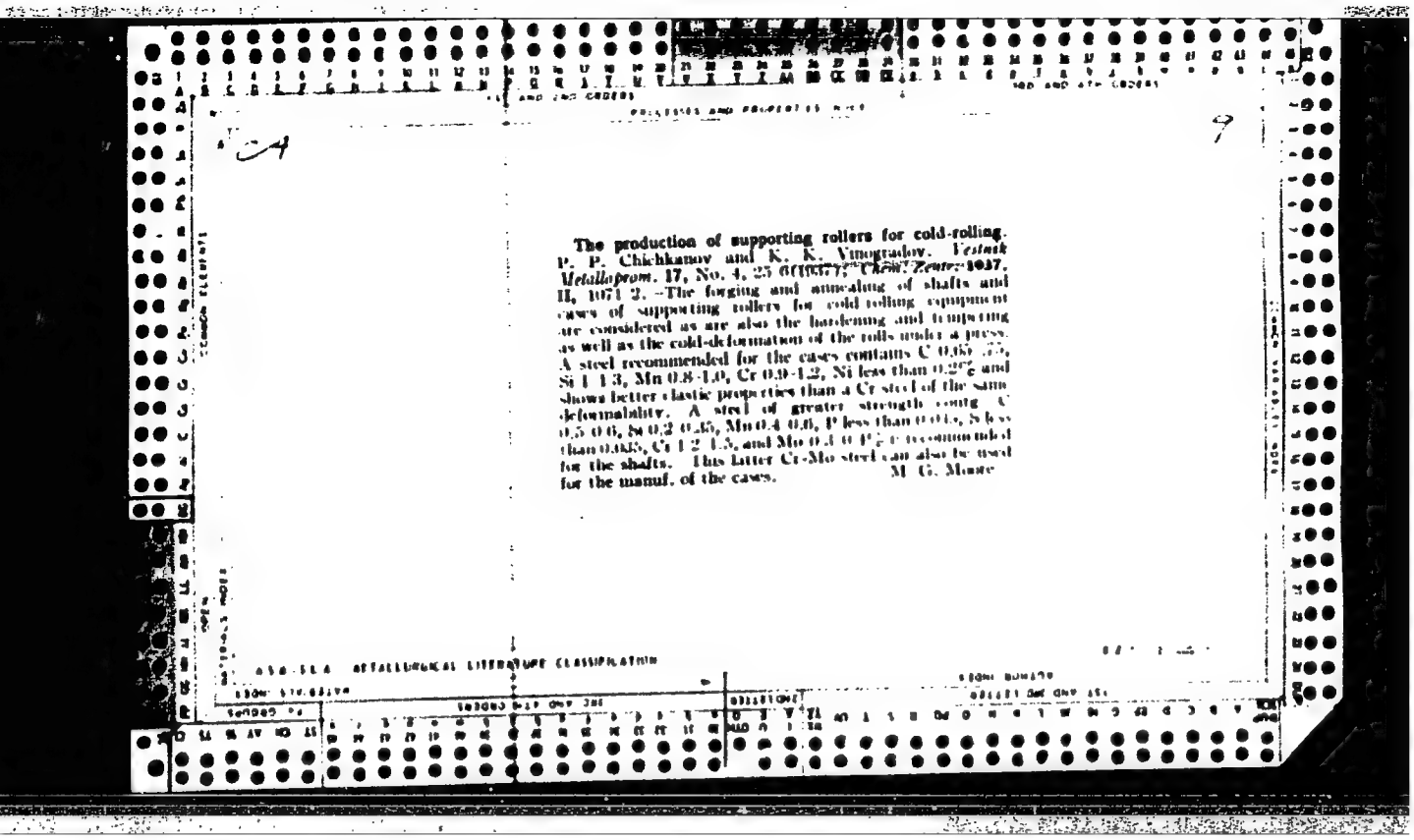


Production of Rolls for Cold Rolling Mills. P. P. Chichikanov, K. K. Vinogradov, and V. J. Chuprakov. (Metal Industry Herald, 1936, No. 14, pp. 39-51). The authors describe in detail the production of chromium-steel rolls for cold-rolling, with a diameter up to 45 cm., by the Ural Heavy Machine Building Works. The most difficult stage in production is the heat treatment, to assure a high uniform hardness of the working surface, a tough core, and a smooth transition from the hardened layer of the barrel to the core and to the soft journals. (In Russian).

Vest Metals Trans



Control of steel properties on the basis of grain size. I. P. Tsvetkov and K. K. Chesnokov. Zavod. Lab., 1957, 23, 74–76).—The size of austenite grains formed during tempering varies according to the conditions under which the alloy was formed. R. T.



The production of supporting rollers for cold-rolling. P. P. Chichkanov and K. K. Vinogradov. *Vestnik Metallaprom.* 17, No. 4, 25-6(1937); *Chem. Zentr.* 1937, II, 1074-2.—The forging and annealing of shafts and cases of supporting rollers for cold rolling equipment are considered as are also the hardening and tempering as well as the cold-deformation of the rolls under a press. A steel recommended for the cases contains C 0.95-1.1, Si 1-1.3, Mn 0.8-1.0, Cr 0.9-1.2, Ni less than 0.2% and shows better elastic properties than a Cr steel of the same deformability. A steel of greater strength contg. C 0.5-0.6, Si 0.2-0.35, Mn 0.4-0.6, P less than 0.04, S less than 0.035, Cr 1.2-1.5, and Mo 0.3-0.4% is recommended for the shafts. This latter Cr-Mo steel can also be used for the manuf. of the cases.

M. G. Mante

VINOGRADOV, K. K.

Planning and cost estimates in construction design organizations Moskva, Gos. arkhitekturnoe izd-vo, 1947. 133 p. (48-16059)

HC335.V63)

1. Russia - arkhitektury. II. Russia 1923- U.S.S.R. Laws, statutes, etc.

VINOGRADOV, K K

SOV/122-58-6-32/37

AUTHOR: Korolev, A.A., Candidate of Technical Sciences

TITLE: Development Prospects for the Manufacture of Metallurgical Equipment (O perspektivakh razvitiya metallurgicheskogo mashinostroyeniya)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 6, pp 80-82 (USSR)

ABSTRACT: A branch conference on metallurgical engineering plant, convened at the Uralmashzavod in Sverdlovsk by the Otdel mashinostroyeniya Gosplana (Mechanical Engineering Division of the State Planning Commission of the USSR) is reported. 400 delegates representing 22 economic councils, 14 research institutes, 24 design institutes and 29 metallurgical equipment manufacturing plants were present (including the Uralmashzavod, the Novo-Kramatorskiy zavod (Novo-Kramatorskiy Works), Staro-Kramatorskiy mashinostroitel'niy zavod (Staro-Kramatorskiy Plant), Elektrostal'skiy zavod tyazhelogo mashinostroyeniya (Elektrostal' Plant), the Yuzhno-Ural'skiy zavod tyazhelogo mashinostroyeniya (Yuzhno-Ural'skiy Plant), the Irkutskiy mashinostroitel'nyy zavod (Irkutsk Plant), the Novosibirskiy mashinostroitel'niy zavod (Novosibirsk Plant)) as well as 16 steel Works (including the Magnitogorskiy metallurgicheskiy kombinat, the Azovstal',

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the Zaporozhstal', the Novo-Tagilskiy Works, Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine). In his opening address, Ye.S. Novoselov, Minister of the USSR, emphasised that the State Planning Commission attached great importance to the conference. Vinogradov, K.K., deputy director of the mechanical-engineering division of the State Planning Commission, pointed out that the production of metallurgical equipment increased 16-fold in the period between 1932 and 1957. The manufacture of rolling-mill equipment increased 24-fold. Between 1951 and 1957, 27 blast furnaces, 57 open-hearth furnaces, 35 rolling and tube mills were built and erected and 22 rolling mills were completed, awaiting erection. This equipment was responsible for an increase of 18.2 million tons of pig iron, 24.9 million tons of steel and 19.3 million tons of rolled products. An improvement in quality and a rise in productivity have taken place. During the period between 1959 and 1965, the manufacturers have the task of constructing powerful blast furnaces of 1 719 m^3 and even 2 286 m^3 capacity, the largest in the world. New designs of automatic skip hoists, weighing carriages, charging

machines, spout-closure guns and others must be developed. New charging machines for steel melting plant with a load capacity of 15 tons, powerful ladle cranes, converters and other equipment should be designed. A great increase in quantity of rolling-mill equipment is foreseen. Completely mechanised and largely automated rolling mills are planned, primarily sheet mills, rolled section mills and tube mills with continuous rolling, mills for the production of bent profiles and recurrent sections. Several powerful blooming and slabbing mills with an output of 3.5-4.5 million tons each must be erected and several continuous rolling mills for plate, sections, sheet and tubes. The task set is the production of over 100 million tons of steel per annum by 1972. The two chairmen of the State Planning Commissions of the Russian and Ukrainian Republics, I.Z. Shlykov and V.A. Yanchilin, reported on the planned specialisation among metallurgical equipment manufacturing plants and urged co-operation between constructors. Tselikov, A.I., Corresponding Member of the Ac.Sc.USSR, director of the design office for metallurgical-engineering at the TsNIITMASh read a paper on the basic trends of technical development and

PODSHIVALENKO, P.D.; BALIKHIN, M.I.; BASHINSKIY, S.V.; IVANOV, N.A.; KACHALOV, N.N.; MEMKOV, G.P.; ONUFRIYEV, I.A.; PERESLEGIN, V.I.; RUMYANTSEV, A.F.; RUSAKOV, A.N.; SEMENOV, I.Ya.; STOMAKHIN, I.B.; FILIPPOV, V.F. Prinimal uchastiye VINOGRADOV, K.K. PODGORNOVA, V., red.; TROYANOVSKAYA, N., tekhn.red.

[Construction economics; textbook] Ekonomika stroitel'stva; uchebnoe posobie. Moskva, Gos.izd-vo polit.lit-ry, 1960. 534 p. (MIRA 14:1)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Vysshaya partiynaya shkola. 2. Chlen kollegii TSentral'nogo statisticheskogo upravleniya SSSR (for Vinogradov).

(Construction industry)

S/122/60/000/008/001/006
A161/A029

AUTHORS: Vinogradov, K.K., Umnyagin, M.G., Kharaker, G.M., Engineers

TITLE: Heavy Machine Building Development in the Seven-Year Plan

PERIODICAL: Vestnik mashinostroyeniya, 1960, No. 8, pp. 7-17

TEXT: A general review is made of the development planned for 1959-1965 in the production of equipment for electric power plants, metallurgy, mining, oil and gas industry and in the production technology of machine works that have to build the equipment. For heat power plants single steam turbines will be developed, mainly condensation turbines of 300,000 kw with an initial steam pressure of 240 atm and 580°C, and a few 600,000 kw turbines; condensation turbines of 150 and 200 thousand kw with 130 atm and 565°C; heating turbines with steam bleeding for industrial use, of 50 and 100 thousand kw and 130 atm/565°C, and some of 12 and 25 thousand kw. Experimental sets will be built for 300 atm/650°C and higher. Gas turbines will be built for 25 and 50 thousand kw and 750-800°C gas temperature (the maximum before 1959 was 12 thousand kw and 650°C). Single gas turbines of up to 100 thousand kw are planned. Large-scale output of 4,000, 6,000 and 9,000 kw gas turbines is under preparation for compressor stations on

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long-distance gas pipe lines. Gas turbines will be used in railroad transport, the metallurgical and oil industry. The power of single water turbines will be raised to 300,000 kw. One of the major tasks at the time being is the development of 215,000 kw turbines for the Bratskaya GES (Bratsk Hydroelectric Power Plant). Turbocompressors will be built of up to 150,000 m^3/hour capacity and 8-9 atm pressure; blast furnace compressor pressure will be raised to 3.8-4.2 atm. Boilers of two or three different designs for different fuel have to be developed for 200,000 and 300,000 kw steam turbines; with 810 ton/hour steam capacity and 315 atm for the 300,000 kw turbines; and of 950 and 1,900 ton/hour and 140 atm and 570°C; 250 atm and 585°C. In the metallurgical industry, a blast furnace with 1,719 m^3 volume will be used in the main part; 1,003, 1,386 and 1,513 m^3 furnaces will also be built; the first 2,000 m^3 furnace is being built in 1960, and in 1961 equipment for 2,700 m^3 volume blast furnaces will be produced. The first 2,700 m^3 furnace has to be built in 1962. Steel output will be increased mainly by designing 500-600 tons and larger open-hearth furnaces. The oxygen process in converters is coming into use. The annual output of 65-70 million tons of rolled steel (at least 35 % of it sheet) to be reached by 1965 will take new rolling mills with automatic control; the continuous rol-

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ling process can eliminate the roughing mills (blooming and slabbing mills) if the new equipment combining the continuous teeming unit and the rolling mill will be a success. The rolling speed already reached is high: 11-12 m/sec in continuous sheet mills; 15-18 m/sec in continuous merchant mills and 25-30 m/sec in wire mills. But higher speeds are needed and the rolling mills must be built in a shorter time. Planetary mills and multi-roll mills for 0.1-m sheets of common and special steel, heavy and light nonferrous metals and very thin 1-2-micron bands of high-melting and rare metals are mentioned as becoming very important. The number of tube rolling mill types is low compared with foreign practice. A new cold tube mill type is developed rolling thin-walled tubes with high surface finish (wall thickness less than 1/100 of diameter). The finishing (eliminating defects, piling, marking, sorting, etc.) occupying 80 % of labor must be mechanized. In the ore-mining industry, more than 150 new machines have to be developed, including multibucket wheel excavators with overburden bridge of up to 3,000 m^3/hour capacity; one-bucket excavators with 25, 30 and 50 m^3 bucket. In coal mines work has to be mechanized or automated; dislodging of coal by hydraulic means has to be raised 10 times. About 700 new coal mining machine types

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have to be produced. One example is a stooing machine set with a cutter-loader for 0.85 to 1.8-m flat coal seams, with hydraulic propping system. In the oil and gas industry the output of drilling equipment has to be doubled and the drilling speed raised. The well diameters will be reduced. Turbo-drills and electric drills of new designs will be used. For off-shore drilling new equipment is needed for drilling at longer distance from the shore, as well as for 8 to 10 thousand meter depths. The oil refineries will be equipped for a 2 million tons annual output instead of 600,000 tons by 1952-1958. For foundries of machine building works the mechanization problem seems to be solved in two reconstruction projects developed by VPTI tyazhelogo mashinostroyeniya (VPTI of Heavy Machine Building) for the Uralmashzavod and the Elektrostal'skiy zavod tyazhelogo mashinostroyeniya (Elektrostal' Heavy Machine Building Works). The Uralgiprotyazhmash institute participated in the projects. Casting of up to 800 kg will be produced in three semi-automatic production lines placed across the six bays of the foundry and each bay will be "specialized"; 2-3-ton castings will be produced in separate plots with modernized 17-ton molding machines and a 40-ton table; large castings weighing 30-40 tons will be made in special mecha-

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nized casings ("caissons"), and very large castings of up to 150 tons in reinforced concrete casings, using catilever sand slingers of 40-50 m^3/hour capacity. Cores will be made on 12 lines. The mixing will be mechanized, large castings will be knocked out automatically; hydraulic and shot-blast chambers will be used for cleaning castings, and a new electrolytic cleaning method will come into use. It is estimated that the Uralmashzavod will raise the output of steel castings to 90 tons per man from the present 58 tons annually, cut costs by 23 %. "Jacket molding" used at the Elektrostal' works and experiments with a mechanical molding casing at the NKMZ gave a proof that large castings can be produced 2 to 2.5 times faster comparing with 10-30 days with manual molding when molds are joined from standardized sections made from quick-drying mixtures in molding machines. The first mechanical line for the preparation of large mold boxes (up to 3x2.5x1 m), designed by VPTI, is working at the Electrostal' works since 1959. It is a merry-go-round installation with 6 carriages bearing "coordinate plates" with automatic fixing of patterns, preparing 32 molding box halves per hour. TsNIITMASH has developed a 2-position molding machine with pressing membranes for making shell molds from mixtures with water glass. The foreign molding method with the use of wet bentonite mixes will be used, as it eliminates

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the drying and facing of molds. Centrifugal and die casting will be used for a wider range of castings than before, and it is planned to develop equipment and technology for centrifugal casting of steel and cast iron blanks weighing up to 50 tons. It is mentioned that electroslag welding will be used extensively for joining portions of heavy forgings, and presently the method is used in production of turbine shafts (previously one-piece 190-ton forgings had to be produced). Of the existing machine tools 30-40 % must be replaced by new equipment, and 20-30 % must be modernized; machining methods are to be improved. There are 4 figures.

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S/122/61/000/010/002/011
D221/D304

AUTHORS: Vinogradov, K.K., Chief of Department, and Umyagin, M.G., Director

TITLE: Complex mechanization and automation in heavy engineering

PERIODICAL: Vestnik mashinostroyeniya, no. 10, 1961, 9 - 16

TEXT: The author state that the Soviet-engineering industry has mastered technological methods of manufacturing individual components. Great importance is attached to slag welding, and the use of unit and special prupose machine tools as well as broaching. Special stands equipped with milling, boring and planning heads for single piece production are designed by machine tool makers, with work organized around the component. The Uralmashzavod organizes production so as to have 50 % of the components made up of standardized parts, 40 % of general designation components, and only 10 % of special items. Casting is to be organized in new and reconstructed shops on the basis of flow lines envisaged by the steel

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castings department of the Uralmashzavod or Elektrostal'skiy Plant of Heavy Engineering. Castings are grouped according to size and weight which are handled by specialized sections [redacted]ring complex automation of basic and auxiliary operations. Pattern and moulding box manufacture is normalized. Each group has a single coordinate moulding plate and moulding box size which permits the process to be automated. The planned output of one operator on a line of castings with maximum weight of up to 5000 kg increased 3-4 times as compared to the present production of castings on forming machines with a capacity of 5 tons, whereas on lines with lighter castings this rise may reach 6 times. Large castings are to be made in mechanized caissons, reinforced concrete caissons are foreseen in the case of very large moulds, with application of overhang sand-throwers having a capacity of 40-50 m^3/hour. Cores are made in blocks 1 m long and wide. These lines are composed of a rotary installation of six trolleys, on which coordinates plates with automatic clamping of patterns are mounted. Output of line is 32 half forms by shift, with maximum size of mould [redacted] x 2.5 x 1 m. Sand-jet forming increases the work efficiency by 1.5 - 2.5 times. Handling is

automated. The complex automation of foundry includes the problem of an electronic computer for cupola charge and control of melting process. Design and modernization of foundry machines is also important. In the field of forging, VPTI has developed a project of complex mechanization. Thermal treatment is to be automated with furnace doors operated from the control panel of charger or loading crane. The level of mechanization is planned to be raised from 50 to 75 %, and that of handling from 60 to 99 %. Work efficiency of an operator will increase by 1.5 times, output per square meter of shop floor will be stepped up by 2.5 times, with a simultaneous reduction of average specific labour by 2.5 times. The introduction of flow lines in manufacturing head and main beams for electric travelling cranes should be mentioned. The use of special stands for machining large components at Uralmashzavod is of great importance. The authors consider that the main problem of engineering is the reduction of volume of machining by rational approximation of dimensions and surface finish of blanks. The stability of machining processes and typicalization as well as standardization of components are also decisive in automation. Increased use of

computers for work preparation is called for. Mechanization of auxiliary operations, which utilizes now about half of the operators in USSR is considered as urgent. There are 5 figures.

ASSOCIATION: Otdel ekonomiki i razvitiya tyazhelogo mashinostroyeniya Gosekonomsoveta SSSR (Department of Economics of the Development of Heavy Machine Construction of the Gosekonomsovet, USSR); VPTI tyazhelogo mashinostroyeniya (VPTI of Heavy Machine Construction,

VINOGRADOV, K.

Tasks of heavy machinery manufacture during the period of the creation of the material and technical foundation of communism. Vop. ekon. no.1:30-38 Ja '62. (MIRA 15:1)

(Machinery industry)

VINOGRADOV, K.K.

Introduction of new machinery design and technological developments in industry. Vest.mashinostr. 42 no.11:3-8 N '62. (MIRA 15:11)

1. Nachal'nik otdela ekonimiki i razvitiya tyazhelogo mashinostroyeniya Gosudarstvennogo ekonimicheskogo soveta SSSR.
(Machinery industry)

VINOGRADOV, K.K., inzh.

Specialization in the machinery industry. Vest.mashinostr. 43 no.2:3-8 F '63. (MIRA 16:3)
(Machinery industry)

VINOGRADOV, K.K., inzh.

Some problems in the development of the machinery industry in socialist countries. Vest.mashinostr. 43 no.5:63-67 My '63. (MIRA 16:5)

(Communist countries—Machinery industry)

VINOGRADOV, K.K., inzh.

Cooperation and international division of labor in the machinery industry in socialist countries. Vest. mashinostr. 43 no.12:63-67 D '63. (MIRA 17:8)

VINOGRADOV, K.K.

Objectives of the machinery industry in 1964-1965. Vest. mashinostr. 44 no. 2:3-6 F '64.

1. Zamestitel' nachal'nika otdela narodno-khozyaystvennogo plana po mashinostroyeniyu Gosplana SSSR.

VINOGRADOV, K.K.

Tasks of the machinery industry in supplying new advanced equipment to the national economy. Vest. mashinostr. 44 no.8:3-8 Ag '64. (MIRA 17:9)

1. Zamestitel' nachal'nika otdela narodnokhozyaystvennogo plana po mashinostroyeniyu Gosplana SSSR.

VINOGRADOV, K.K., inzh.

Development of the machinery industry in countries, members of the Council for Mutual Economic Assistance. Vest.mashinostr. 44 no.12:64-68 D '64. (MIRA 18:2)

VINOGRADOV, K.K.

Problems of the specialization of production in the machinery industry. Vest.mashinostr. 45 no.9:3-8 S '65.

(MIRA 18:10)

1. Nachal'nik otdela narodnokhozyaystvennogo plana po mashinostroyeniyu Gosplana SSSR.

VINOGRADOV, K.K., inzh.

Development of the machinery industry in member countries of the Council for Mutual Economic Assistance in 1964. Vest.mashinostr. 45 no.10:70-72 O '65.

(MIRA 18:11)

VINOGRADOV, K.K., inzh.

East German combined rolling mills. Vest.mashinostr. 45 no.11:81-83 N '65. (MIRA 18:12)

VINOGRADOV, K.K.

Objectivesof the machinery industry in 1966. Vest. mashinostr. 46 no.1:3-6 Ja '66. (MIRA 19:1)

1. Nachal'nik otdela tyazhelogo, transportnogo i energeticheskogo mashinostroyeniya Gosplana SSSR.

ACC NR: AP7003839 SOURCE CODE: UR/0122/67/000/001/0003/0008

AUTHOR: Vinogradov, K. K. (Member of Gosplan SSSR)

ORG: none

TITLE: Machine construction in the USSR

SOURCE: Vestnik mashinostroyeniya, no. 1, 1967, 3-8

TOPIC TAGS: machine industry, mechanical engineering

ABSTRACT:

The author analyzes the problems of machine construction in 1967. Improvements in various branches of machine construction for the tractor, mining, automobile, and agricultural industries are analyzed, and increases in productivity are forecast. New machines to be built are also described, and new methods of planning are proposed. Suggestions on how to improve the work of scientific research organizations are also given.

SUB CODE: 13/ SUBM DATE: none/ ATD PRESS: 5113

Card 1/1 UDC: none

SEREBRYANNYY, Leonid Ruvimovich; VINOGRADOV, A.P., akademik, otv. red.; NEYSHTADT, M.I., doktor geogr. nauk, otv. red.

[Progress of radiocarbon dating in Quaternary geology; for the 7th INQUA Congress (U.S.A., 1965)] Primenenie radiouglerodnogo metoda v chetvertichnoi geologii. Moskva, Nauka, 1965. 268 p. (MIRA 18:9)

VINOGRADOV, A.P.; YAROSHEVSKIY, A.A.

Physical conditions governing the zonal melting of the earth's crust. Geokhimiya no.7:779-790 Jl '65. (MIRA 18:11)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR, Moskva. Submitted April 6, 1965.

VINOGRADOV, A.P.

Meteoritic substance. Geokhimiia no.11:1275-1312 N '65.
(MIRA 19:1)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva. Submitted August 6, 1965.

VINOGRADOV, K.M.

Some problems in the developing of electrophotographic layers.
Zhur.nauch.i prikl.fot.i kin. 7 no.1:59-60 Ja-F '62.
(MIRA 15:3)

1. Gosudarstvennyy opticheskiy institut imeni S.I.Vavilova.
(Xerography)

Vinogradov, K. M.

SOV/77-4-2-15/18

Successes of Soviet Electrophotography; A Scientific and Technical Conference on Questions of Electrography, 10-14 Dec. 58

K.M. Vinogradov described some of the features of the cascade and liquid methods of electrophotographic development. Yu.Ye. Karpeshko devoted his report to the criterion of light sensitivity of the eletrophotographic process. After the reports, a discussion took place on methods of determining the light sensitivity of electrophotographic layers. A.N. Chernyshev spoke on the prospects of developing polygraphic processes using electric and magnetic forces. O.V. Grogov (speaking also for I.I. Zhilevich, A.A. Sukhiy, V.A. Cordeyeva, A.S. Pauzha and Yu. I. Kevalaytis) reported on the development of electrophotographic reproducing equipment. A.S. Pauzha (speaking also for I.I. Zhilevich, A.S. Borisevich, N.M. Gal'vidiks and M.I.Rautkauskas) reported on the use of electrographic methods in recording oscillographs and other recording instruments.

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SOV: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1959, Vol. 4, No. 2.

VINOGRADOV, K. M. and [illegible], G. K.

"Measurement of Phase Velocity and Attenuation of Surface Waves in Solids."

paper presented at the All-Union Conf. on Acoustics, Moscow, 26 May - 2 Jun 58.

SOV/120-58-5-27/32

AUTHORS: Ul'yanov, G. K. and Vinogradov, K. N.

TITLE: Measurement of Inhomogeneous Permanent Magnetic Fields (Izmereniye neodnorodnykh postoyannykh magnitnykh poley)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 102-104 (USSR)

ABSTRACT: The investigation was conducted with a series of permanent 'horseshoe' magnets, all made of magnetic alloy ANK 0-4. The 'horseshoe' geometry was achieved as follows: from a cylinder of ANK 0-4, diameter 60 mm, thickness 30 mm, a 36 mm diameter cylinder was removed eccentrically, so that its circumference was within a few mm of the circumference of the outer cylinder at their closest approach. A slice of the alloy separating the two circumferences in the closest approach region was then removed and the walls on either side of the gap were magnetised with mutually opposite polarity to make the pole-pieces of the 'horseshoe'. The only difference in the geometry of the various permanent magnets lay in the nature of the gap between the pole-pieces. In every case this gap was bounded by two planes parallel to the cylinder axes, but the angle 2α between these planes assumed the respective values: 0°, 30°, 40° and 50° in the four cases investigated. The set-up for measuring the highly

Measurement of Inhomogeneous Permanent Magnetic Fields

inhomogeneous magnetic fields around the pole-pieces of these magnets was essentially an alternating current Wheatstone bridge, having impedances R_1, R_2, R_3, R_4 in that order, clockwise around the bridge. The AC input from a signal generator was applied across the junctions R_1/R_2 and R_3/R_4. Impedances R_1 and R_2 were kept fixed. The impedance R_4 was that of a taut molybdenum wire 0.05 mm in diameter and of a length somewhat in excess of the thickness (30 mm) of the horseshoe magnet, so that the latter could be located with its pole-pieces either side of the wire without fouling the terminals. The impedance R_4 of the molybdenum wire was then related to the magnetic field in which it found itself. The bridge was balanced, by adjusting R_3, for each of a number of positions of each permanent magnet in relation to the molybdenum wire; the record of R_3 for the various positions gave the variation of R_4 and

Measurement of Inhomogeneous Permanent Magnetic Fields

hence of the magnetic field. For each magnet the field was determined over two planes (OX, OY) intersecting orthogonally at the centre of the gap, the OY plane including the axes of the cylinder defining the inner and outer 'sides' of the horseshoe. For all values of 2α the field over OY was found to decrease monotonically and symmetrically away from the centre of the gap; for $2\alpha = 0^{\circ}, 30^{\circ}, 40^{\circ}$ the field over OX also decreased away from the centre, but asymmetrically; for $2\alpha = 50^{\circ}$ the field over OX had asymmetric peaks either side of the gap. The text contains 5 figures and 5 references, 4 of which are Soviet and 1 English.

ASSOCIATION: Leningradskiy korablestroitel'nyy institut (Leningrad Shipbuilding Institute)

SUBMITTED: November 18, 1957.

SOV/46-5-3-4/32

24(1), 24(6)

AUTHORS: Vinogradov, K.N. and Ul'yanov, G.K.

TITLE: Measurement of the Velocity and Attenuation of Ultrasonic Surface Waves in Solids (Izmereniye skorosti i zatukhaniya ul'trazvukovykh poverkhnostnykh voln v tverdykh materialakh)

PERIODICAL: Akusticheskiy zhurnal, 1959, Vol 5, Nr 3, pp 290-293 (USSR)

ABSTRACT: The paper was presented at the IV-th All-Union Conference on Acoustics in 1958. The authors used three methods to measure the ultrasonic surface-wave velocity. The pulse method was used to measure the velocity in dielectrics (optical glass and fused quartz). Wedge-shaped transducers with a variable angle were used to obtain approximate values of the surface-wave velocity. The standing-wave method was used to find precise values of the surface-wave velocity in metals. In the pulse method the authors used wedge-transducers as sources and receivers. Construction of a wedge-transducer is shown schematically in Fig 1, where 1 is a plastic wedge, 2 a sample and 3 a piezo-element. Mineral oil was used to achieve good acoustical contact between the transducers and the sample. The whole apparatus is shown schematically in Fig 2 where 1 is a pulse generator, 2 is an h.f. oscillator, 3 is the radiating transducer, 4 is the sample, 5 is the receiving transducer,

Measurement of the Velocity and Attenuation of Ultrasonic Surface Waves in Solids

6 is an h.f. amplifier with a detector and 7 is a cathode-ray oscillograph. The pulse method yielded the following results for the surface-wave velocity (accurate to within 2-3%): optical glass K-8 - 3.15 x 10^5 cm/sec, fused quartz - 3.40 x 10^5cm/sec. The variable-angle wedge method is based on the relationship:

$$C_R = C_L \sin\theta_{cr},$$

where C_R is the surface wave velocity in the sample, C_L is the longitudinal-wave velocity in the wedge and θ_{cr} is the critical wedge angle at which transformation of longitudinal into surface waves is most efficient. A variable-angle wedge transducer is shown in Fig 3, where 1 is a cylindrical sector made of polystyrene, 2 is a polystyrene slider and 3 is a piezo-element. The angle of incidence of the ultrasonic beam from the piezo-element, θ, is varied by moving the piezo-element along the sector surface. The measurement technique is simple and it is possible to obtain rapidly fairly accurate (~2% error) estimates of the surface-wave velocity in various materials. More exact measurements of the surface-wave velocity in metals were made using the standing-wave method (Ref 1). The surface wave was excited by means of a wedge transducer. A contactless magneto-acoustic

transducer, which could be moved along the sample surface by means of a micrometer, was used as a receiver. This magneto-acoustic transducer (Fig 4) consisted of a horse-shoe magnet 1, pole-pieces 2 and a coil 3. Eddy currents due to vibrations of the metal-sample surface induced e.m.f.s in the transducer coil; these e.m.f.s were of the same frequency as the ultrasound in the sample. Complete apparatus used in the standing-wave measurements is shown schematically in Fig 6. Using the standing-wave method at 2.5 Mc/s results ranging between 2.76 and 2.99 x 10^5cm/sec (accuracy ± 0.2%) were obtained for the surface-wave velocity in aluminium A-1 Armco iron, steel 3, duralumin D-1, magnesium alloy MA-3 (Table 1). Attenuation was measured using the pulse method (transducers were X-cut quartz wedges). One of the transducers was kept fixed and the other was moved along the surface. Attenuation was deduced from the relative change in the received-signal amplitude with increase of distance along the sample. Measurements were made at 2.5, 5.0 and 8.0 Mc/s. The results at 2.5 Mc/s were estimates rather than precise values because of weak attenuation at this frequency and consequent considerable errors in measurement of small changes in the signal amplitude. Table 2 shows that the attenuations of surface and volume

waves in steel 3, duralumin D-1, magnesium alloy MA-3, fused quartz and optical glass K-8 are of the same order at 8.0 Mc/s (0.01-0.2 dB/cm). The surface-wave attenuation depends strongly on the surface finish, presence of the residual stresses or oxide films etc. For example oxidation of a magnesium alloy MA-3 sample increased absorption of 8.0 Mc/s surface waves from 0.08 to 0.25 dB/cm. There are 6 figures, 2 tables and 6 references, 3 of which are Soviet and 3 English.

ASSOCIATION: Leningradskiy korablestroitel'nyy institut (Leningrad Shipbuilding Institute)

SUBMITTED: July 15, 1958

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Innovators' certificates and patents. Mashinostroenie no. 2: 103-109 Mr-Ap '64. (MIRA 17:5)

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